LAWRENCE LIVERMORE REPORT

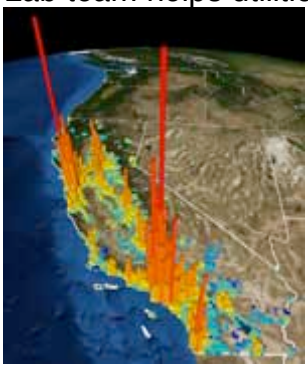
A weekly collection of scientific and technological achievements from Lawrence Livermore National Laboratory: March 10-14, 2008.

Strange weapon is a modern marvel

The History Channel's "Modern Marvels" recently featured the Laboratory's Solid State Heat Capacity Laser on its episode "Strange Weapons." The laser, the most powerful of its kind, has possible defense applications, such as destroying in mid-flight mortars and artillery shells, as well as improvised explosive devices. The laser could be used on naval ship or helicopters.

For more, see the clip at
https://publicaffairs.llnl.gov/news/llnl_reports/modern_marvels_sshcl.html

Lab team helps utilities forecast future energy supply, demand



This map of California shows a sample visualization of how current and potential energy demands are distributed. The visualization provides a way to evaluate possible future scenarios.

How to best offset emissions to slow global warming is among the puzzles that face policymakers, scientists, engineers and the commercial sector. For example, would carbon sequestration pose more advantages than disadvantages?

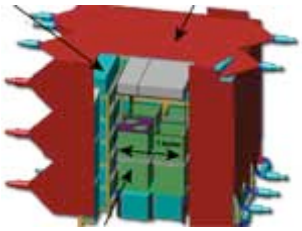
Energy producers would like to assess what climate change variables and policy options will most influence demand, supply, cost and reliability. In looking at

climate change impacts, strategic decisions can be guided by tying climate modeling and energy systems modeling research together.

That is a goal of a three-year Department of Energy project spearheaded in Lawrence Livermore National Laboratory's National Security Engineering Division by Jeff Stewart, a project engineer and environmental economist, and colleagues. Partners include Princeton University, the University of Washington, the University of California at Davis and Pacific Gas and Electric (PG&E), which is one of the country's largest public utilities.

For more, see https://newsline.llnl.gov/articles/2008/mar/03.14.08_climate.php

New tool to monitor nuclear reactors



A conceptual drawing of a new detector that can measure the activities of a nuclear reactor.

International inspectors may have a new tool to peer inside a working nuclear reactor. A Lawrence Livermore National Laboratory-Sandia National laboratories team recently demonstrated that the operational status and thermal power of reactors can be quickly and precisely monitored, using a cubic-meter-scale antineutrino detector.

Antineutrinos are particles emitted from nuclear reactors. The detector can be used to provide a direct measurement of the operational status (on/off) of the reactor, measure the reactor thermal power and determine the operational amount of plutonium or uranium necessary to run the reactor.

The team's work will appear in an upcoming issue of the Journal of Applied Physics.

For more information, see
https://publicaffairs.llnl.gov/news/news_releases/2008/NR-08-03-04.html

Lab helps educate the teachers of tomorrow

Lab scientists Laura Gilliom and Don Correll were featured panelists at a recent meeting organized by the California State University (CSU) system and held at Lawrence Berkeley National Laboratory. The meeting highlighted the summer pilot program held last year at Lawrence Livermore, in which a cohort of 16 science majors and recent graduates planning to become science teachers were hosted for a mentored research internship and other focused activities.

The purpose of the CSU meeting was to gain support for the continuation and expansion of the program for summer 2008 and beyond. The program was designed to build a sustainable, scalable partnership for the development and early career retention of new science teachers in the Bay Area. Present plans are to host 30-45 aspiring science teachers at four Bay Area labs, Lawrence Livermore, Lawrence Berkeley, the Stanford Linear Accelerator Center and NASA Ames, this summer.

Stipends for the students are being provided by the Bechtel Foundation, through a gift to CSU. Bechtel is one of the partner companies of Lawrence Livermore National Security, LLC, which manages the Laboratory.

Physical society taps Lab researcher as outstanding referee

Peter Beiersdorfer

Laboratory physicist Peter Beiersdorfer was selected by the American Physical Society (APS) editors as one of the 534 outstanding referees of APS journals. APS intends to choose additional 130 or so referees each subsequent year for this lifetime award. APS plans to recognize the outstanding referees during the

prize and award session at the 2008 APS March meeting in New Orleans and at the April meeting in St. Louis.

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